(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) **EP 3 702 619 A1**

(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
02.09.2020 Bulletin 2020/36

(21) Application number: **19159248.4**

(22) Date of filing: **26.02.2019**

(51) Int Cl.:
F04D 17/16 *(2006.01)* ***F04D 25/06*** *(2006.01)*
F04D 29/58 *(2006.01)* ***F23D 14/36*** *(2006.01)*

(84) Designated Contracting States:
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR
Designated Extension States:
BA ME
Designated Validation States:
KH MA MD TN

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(54) **FAN ASSEMBLY FOR A GAS BURNER APPLIANCE AND ASSEMBLY COMPRISING THE FAN ASSEMBLY**

(57) Fan assembly (11) of a gas burner appliance, the fan assembly (11) comprises a fan module (14) and an electronic module (15). The fan module (14) has a fan module housing (16) comprising a fan plate housing part (17), a fan impeller housing part (18) and a collar housing part (19). The fan module has a fan impeller (20), the fan impeller (20) is positioned at the first side of the fan plate housing part (17). The fan module has a cooling impeller (22), the cooling impeller (22) is positioned at the second side of the fan plate housing part (17). The fan module (14) has first electronic components for controlling the operation of the fan assembly (14), the first electronic components are cooled by said cooling impeller (22). The electronic module (15) has an electronic module housing (24). The electronic module has second electronic components for controlling the operation of the fan assembly, wherein said second electronic components are connected to said first electronic components. The electronic module housing (24) is releasably mounted to collar housing part (19) in such a way that for mounting the electronic module (15) to the fan module (14) and for unmounting the electronic module (15) from the fan module (14) the electronic module (15) is guided relocatable at the collar housing part (19) in a linear direction running perpendicular to a rotation axis (23) of the cooling impeller (22) and/or running perpendicular to a rotation axis (21) of the fan impeller (20).

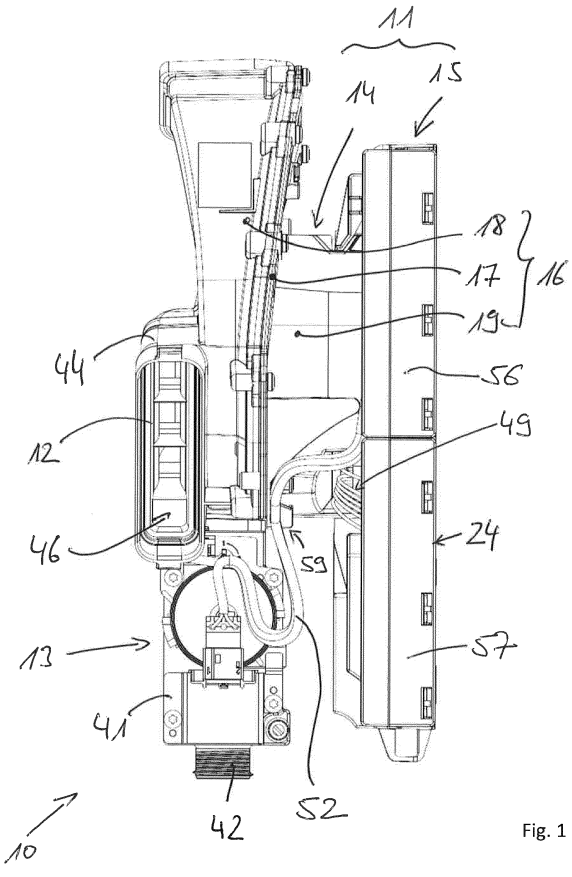

Fig. 1

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Description

[0001] The present patent application relates to a fan assembly for a gas burner appliance. Further on, the present patent application relates to an assembly comprising such a fan assembly.

[0002] EP 3 015 768 A1 discloses an assembly comprising a gas valve for providing a gas flow, a fan for providing an air flow and a gas/air mixer for mixing the gas with the air thereby providing a gas/air mixture. The fan comprises a fan housing with a fan plate housing part and a fan impeller housing part, wherein the fan impeller housing part is mounted to the fan plate housing part. The fan comprises further a fan impeller, said fan impeller being positioned within an interior space of the fan module housing defined by the fan plate housing part and the fan impeller housing part. A burner door through which the assembly is connectable to a gas burner is provided together with the fan impeller housing part as monolithic element.

[0003] DE 10 2010 008 988 A1 discloses a pre-mix fan assembly for a gas burner appliance. This pre-mix fan assembly has a fan housing, a fan impeller being positioned with the fan housing and a fan motor for driving the fan impeller. The fan motor is carried by a mounting plate attached to the fan housing. A printed circuit board is attached to the mounting plate, wherein the printed circuit board comprises electronic components for controlling the operation of the fan. The printed circuit board comprising the electronic components and the fan motor are positioned within a cover.

[0004] Against this background, a novel fan assembly is provided.

[0005] The fan assembly according to the present disclosure is defined in claim 1.

[0006] The fan assembly according to the present disclosure comprises a fan module and an electronic module.

[0007] The fan module of the novel fan assembly has a fan module housing comprising a fan plate housing part, a fan impeller housing part and a collar housing part. The fan impeller housing part is mounted to the fan plate housing part at a first side of the fan plate housing part. The collar housing part is mounted to the fan plate housing part at an opposite second side of the fan plate housing part.

[0008] The fan module of the novel fan assembly further has a fan impeller. Said fan impeller is positioned at the first side of the fan plate housing part within a first interior space of the fan module housing defined by the fan plate housing part and the fan impeller housing part. The fan module of the novel fan assembly further has a cooling impeller. Said cooling impeller is positioned at the second side of the fan plate housing part within a second interior space of the fan module housing defined by the fan plate housing part and the collar housing part.

[0009] The fan module of the novel fan assembly further has first electronic components for controlling the operation of the fan assembly. Said first electronic components are positioned within the second interior space. Said first electronic components are cooled or can be cooled by said cooling impeller.

[0010] The electronic module of the novel fan assembly has an electronic module housing. The electronic module of the novel fan assembly further has second electronic components for controlling the operation of the fan assembly. Said second electronic components are positioned with said electronic module housing. Said second electronic components of the electronic module are electrically or electronically connected to the first electronic components of the fan module.

[0011] The electronic module housing of the electronic module is releasably mounted to collar housing part of the fan module housing of the fan module.

[0012] The electronic module housing is releasably mounted to collar housing part in such a way that for mounting the electronic module to the fan module and for unmounting the electronic module from the fan module the electronic module is guided relocatable at the collar housing part in a linear direction running perpendicular to a rotation axis of the cooling impeller and/or running perpendicular to a rotation axis of the fan impeller.

[0013] The novel fan assembly provides a compact solution of mounting the electronic module of the fan assembly to the fan module of the fan assembly to allow easy service and reliable functionality.

[0014] The novel fan assembly allows easy service of electronics by pulling the electronic module to front. The novel fan assembly provides a very compact design requiring only little space within the gas burner appliance.

[0015] Preferably, the novel fan assembly has guide elements for guiding the electronic module at the collar housing part while mounting and unmounting the electronic module and the fan module. The guide elements may be provided at the collar housing part of the fan module housing and at the electronic module housing. Said guide elements may provide guide rails. These features of the novel fan assembly are preferred to provide a compact solution and to allow easy service and reliable functionality.

[0016] Preferably, said collar housing part of the fan module housing of the fan module has an end stop limiting the linear movement of the electronic module relative to the fan module while mounting the electronic module to the fan module. Said collar housing part of the fan module housing of the fan module may have a locking element for securing the electronic module at the fan module. These features of the novel fan assembly are also preferred to provide a compact solution and to allow easy service and reliable functionality.

[0017] Preferably, the novel fan assembly has compensation elements for compensating a clearance between the electronic module and the fan module when the electronic module and the fan module are mounted together, wherein said compensation elements may be

provided by elastically deformable protrusions at the electronic module housing and/or collar housing part. These features of the novel fan assembly are also preferred to provide a compact solution and to allow easy service and reliable functionality.

[0018] Preferably, a wall section of the collar housing part defines together with a wall section of the electronic module housing a flow channel for cooling air, wherein the wall section of the collar housing part and the wall section of the electronic module housing preferably each have an indentation defining the flow channel for cooling air when the electronic module and the fan module are mounted together. These features of the novel fan assembly are also preferred to provide a compact solution and to allow easy service and reliable functionality.

[0019] An assembly comprising a gas valve, the novel fan assembly and a gas/air mixer is defined in claim 15.

[0020] Preferred developments of the invention are provided by the dependent claims and the description which follows. Exemplary embodiments are explained in more detail on the basis of the drawing, in which:

Figure 1 shows a front view of an assembly comprising a gas valve, a fan assembly and a gas/air mixer, the fan assembly having a fan module and an electronic module;
Figure 2 shows a perspective view of the assembly of Figure 1;
Figure 3 shows the front view of Figure 1 with connector locks of the electronic module being opened;
Figure 4 shows a partial exploded view of the assembly of Figure 1;
Figure 5 shows a cross-section of the of the assembly of Figure 1;
Figure 6 shows a perspective view of the electronic module;
Figure 7 shows the detail VII of Figure 6;
Figure 8 shows the detail VIII of Figure 6;
Figure 9 shows a perspective view of the assembly of Figure 1 without the electronic module;
Figure 10 shows a detail of Figure 9;
Figure 11 shows a perspective view of a collar housing part of a fan module housing of the fan module;
Figure 12 shows the detail XII of Figure 11;
Figure 13 shows the detail XIII of Figure 11;
Figure 14 shows the detail XIV of Figure 3;
Figure 15 shows a perspective view of the detail of Figure 14;
Figure 16 shows a perspective view of the electronic module and the collar housing part of the assembly of Figure 1;
Figure 17 shows a detail of Figure 3 with a partial cross section;
Figure 18 shows a cross section of Figure 16;
Figure 19 shows a side view of the assembly of Figure 1;
Figure 20 shows a perspective view of a detail of the electronic module.

[0021] The present disclosure relates to a novel fan assembly of a gas burner appliance. Preferably, the novel fan assembly is part of an assembly of a gas burner appliance comprising in addition to the fan assembly also a gas valve and a gas/air mixer.

[0022] Figures 1 to 5 all show different views of an assembly 10 of a gas burner appliance comprising a fan assembly 11, a gas/air mixer 12 and a gas valve 13. The assembly 10 is a premix assembly providing a gas/air mixture M (see Figure 5) to a burner chamber (not shown) of the gas burner appliance. The gas/air mixture M is provided by the gas/air mixer 12, namely by mixing a flow of gas G (see Figure 5) with a flow of air A (see Figure 5). The flow of gas G is provided by the gas valve 13. The fan assembly 10 is positioned downstream of the gas/air mixer 12.

[0023] The fan assembly 10 sucks in the gas/air mixture M. The amount of flow of the gas/air mixture M depends on the fan speed of the fan assembly 10, wherein the fan speed of the fan assembly 10 depends on the desired burner load of the gas burner appliance. The fan speed of the fan assembly 10 defines the amount of the air flow A and thereby the amount of the gas/air mixture flow M.

[0024] The opening position of the gas valve 13 is preferably controlled in such a manner that at any desired burner loads and therefore at any fan speeds of the fan assembly 11 the mixing ratio of gas G and air A within the gas/air mixture M is kept constant.

[0025] The fan assembly 11 comprises a fan module 14 and a electronic module 15.

[0026] The fan module 14 of the fan assembly 11 has a fan module housing 16 comprising a fan plate housing part 17, a fan impeller housing part 18 and a collar housing part 19. The fan impeller housing part 18 is mounted to the fan plate housing part 17 at a first side of the fan plate housing part 17. The collar housing part 19 is mounted to the fan plate housing part 17 at an opposite second side of the fan plate housing part 17. The collar housing part 19 and the fan impeller housing part 18 are both firmly attached to the fan plate housing part 17.

[0027] The fan module 14 of the fan assembly 11 further has fan impeller 20. Said fan impeller 20 is positioned at the first side of the fan plate housing part 17 within a first interior space of the fan module housing 16 defined by the fan plate housing part 17 and the fan impeller housing part 18. The fan impeller 20 is driven by a fan motor (not shown) of the fan module 14. The fan impeller 20 rotates around a rotation axis 21.

[0028] The fan module 14 of the fan assembly 11 further has a cooling impeller 22. Said cooling impeller 22 is positioned at the second side of the fan plate housing part 17 within a second interior space of the fan module housing 16 defined by the fan plate housing part 17 and the collar housing part 19.

[0029] The fan motor is preferably also positioned within said second interior space of the fan module housing 16. The cooling impeller 22 rotates around a rotation axis 23.

[0030] The rotation axis 21 of the fan impeller 20 and the rotation axis 23 of the cooling impeller 22 may run parallel to each other. Preferably, these rotation axes 21, 23 fall together.

[0031] The fan module 14 of the fan assembly 11 further has first electronic components for controlling the operation of the fan assembly 14. Said first electronic components are positioned - together with the cooling impeller 22 and the fan motor - within the second interior space. Said first electronic components may comprise a speed sensor and power components. Said first electronic components may be cooled by said cooling impeller 22, preferably together with motor winding of the fan motor.

[0032] The electronic module 15 of the fan assembly 11 has an electronic module housing 24.

[0033] The electronic module 15 of the fan assembly 11 has second electronic components for controlling the operation of the fan assembly 11, said second electronic components being positioned with said electronic module housing 24.

[0034] Said second electronic components which are positioned in the electronic module housing 24 are electrically or electronically connected to said first electronic components which are positioned in the fan module housing 16. This connection is provided by wires 49 or by a cable 49 running between the electronic module 15 and the fan module 14. Said wires or a cable 49 can be best seen in Figure 3. A connector 50 terminating said wires or a cable 49 is connected to a receptacle 54 of the electronic module 15.

[0035] The electronic module housing 24 of the electronic module 15 is releasably mounted to collar housing part 19 of the fan module housing 16, namely in such a way that for mounting the electronic module 15 to the fan module 14 and for unmounting the electronic module 15 from the fan module 14 the electronic module 15 is guided relocatable at the collar housing part 19 in a linear direction running perpendicular to the rotation axis 23 of the cooling impeller 22 and/or running perpendicular to the rotation axis 21 of the fan impeller 20.

[0036] Preferably, the mounting and unmounting direction of electronic module 15 runs perpendicular to the rotation axis 23 of the cooling impeller 22 and to the rotation axis 21 of the fan impeller 20. Said mounting and unmounting direction is indicated in Figure 4 by the arrows 51. Said mounting and unmounting direction 51 runs in Z direction (see Figure 2).

[0037] The mounting/unmounting direction 51 for the electronic module 15 at/from the fan module 14 is defined by guide elements 25, 26, 27, 28. The guide elements 25, 26, 27, 28 are guiding the electronic module 15 at the collar housing part 19 while mounting and unmounting the electronic module 15 and the fan module 14.

[0038] The collar housing part 19 of the fan module housing 16 of the fan module 14 has first upper and lower guide elements 25, 26. The electronic module housing 24 of the electronic module 15 has second upper and lower guide elements 27, 28. Said first upper and lower guide elements 25, 26 of the collar housing part 19 and said second first upper and lower guide elements 27, 28 of the electronic module housing 24 define together the linear direction 51 of movement while mounting and unmounting the electronic module 15 and the fan module 14. Said first upper and lower guide elements 25, 26 of the collar housing part 19 and said second first upper and lower guide elements 27, 28 of the electronic module housing 24 provide guide rails for said linear movement.

[0039] Said electronic module 15 has in addition to the second electronic components third electronic components. Said third electronic components control the operation of other components of the gas burner appliance, e.g. of the gas valve 13 of the assembly 10. Said third electronic components may also control the operation of an ignition device of the gas burner appliance and/or the operation of a water pump the gas burner appliance and/or the operation of a water valve of the gas burner appliance.

[0040] Said third electronic components which are positioned in the electronic module housing 24 are electrically or electronically connected to the respective other components of the gas burner appliance by wires 52 or a cable 52 running between the electronic module 15 and the respective other components of the gas burner appliance. Said wires or a cable 52 can be best seen in Figures 1, 3. A connector 53 terminating said wires or a cable 52 is connected to a receptacle 55 of the electronic module 15.

[0041] The mounting/unmounting of the electronic module 15 at/from the fan module 14 can be performed when the connectors 50, 53 are disconnected from the respective receptacles 54, 55 of the electronic module 15.

[0042] The electronic module further comprises door-like connector locks 56, 57. When the connector locks 56, 57 are opened (see Figures 1, 2, 14, 15) the connectors 50, 53 can be connected to and disconnected from the receptacles 54, 55, When the connector locks 56, 57 are closed (see Figures 1, 2) said connecting/disconnecting operation of the connectors 50, 53 and receptacles 54, 55 is not possible.

[0043] When the connectors 50, 53 are received by or connected to the receptacles 54, 55 and when the connector locks 56, 57 are closed, the connector locks 56, 57 secure the connector 50, 53 of the respective wires/cable 49, 52 at the electronic module housing 24.

[0044] Said collar housing part 19 of the fan module housing 16 of the fan module 14 has an end stop 29 limiting the linear movement of the electronic module 15 relative to the fan module 14 while mounting the electronic module 15 to the fan module 14. The end stop 29 of the collar housing part 19 acts together with a back

side of the electronic module housing 24 of the electronic module 15.

[0045] Said collar housing part 19 of the fan module housing 16 of the fan module 14 further has a locking element for securing the electronic module 15 at the fan module 14. Said locking element is preferably provided by a snap lock 30. Said snap lock 30 engages a section 31 of the electronic module housing 24 when the electronic module 15 is mounted to the fan module 14. The snap lock 30 is an elastically deformable element. When the snap lock 30 is in an unactuated status, the snap lock 30 secures the electronic module 15 at the fan module 14. When the electronic module 15 shall be unmounted from the fan module 14, it is necessary to elastically deform the snap lock 30. Stops 61 provided at the collar housing part 19 proximate to the snap lock 30 limit the elastic deformation of the snap lock 30 to avoid the risk that the same becomes damaged.

[0046] Said section 31 of the electronic module housing 24 acting together with the snap lock 30 is provided at a front side of the electronic module housing 24 of the electronic module 15. When the snap lock 30 engages the section 31 at the front side of the electronic module housing 24, the back side of the electronic module housing 24 is resting against the end stop 29. The section 31 of the electronic module housing 24 which acts together with the snap lock 30 has a protrusion 32 engaging into a recess 33 of the snap lock 30 when the snap lock 30 secures the electronic module 15 at the fan module 14.

[0047] The fan assembly 11 further has compensation elements 34 and 36 for compensating clearance between the electronic module 15 and the fan module 14. Said compensation elements 34 and 36 compensate the clearance between the electronic module 15 and the fan module 14 when the electronic module 15 is mounted to the fan module 14.

[0048] First compensation elements 34 compensate a clearance between the electronic module housing 24 and the collar housing part 19 in the direction running parallel to the rotation axes 21, 23 of the cooling impeller 22 and fan impeller 20.

[0049] Said first compensation elements 34 compensate a clearance between the electronic module housing 24 and the collar housing part 19 in X direction (see Figure 2).

[0050] Second compensation elements 36 compensate a clearance between the electronic module housing 24 and the collar housing part 19 in the direction running perpendicular to the rotation axes 21, 23 of the cooling impeller 22 and fan impeller 20 and running perpendicular for the linear direction 51 of movement of the electronic module 15 when mounting and unmounting the electronic module 15 and the fan module 14.

[0051] Said second compensation elements 36 compensate a clearance between the electronic module housing 24 and the collar housing part 19 in Y direction (see Figure 2).

[0052] Said compensation elements 34, 36 are preferably provided by elastically deformable protrusions at the electronic module housing 24 and/or collar housing part 19.

[0053] When a compensation element is provided by the electronic module housing 24 - see compensation elements 36 in Figures 6, 7 - the same acts together with a surface area 37 at the collar housing part 19 (see Figure 16). When a compensation element is provided by the collar housing part 19 - see compensation elements 34 in Figures 9, 10, 11, 12, 13 - the same acts together with a surface area 35 at the electronic module housing 24 (see Figure 6, 7, 8).

[0054] When the electronic module housing 24 is mounted at collar housing part 19, said compensation elements 34, 36 are elastically deformed and the same rest against the corresponding surface area 35, 37 thereby compensating a clearance between the electronic module housing 24 and the collar housing part 19.

[0055] The end stop 29 also provides a third clearance compensation element between the electronic module housing 24 and the collar housing part 19 for clearance compensation in Z direction (see Figure 2).

[0056] Said end stop 29 which is provided by the collar housing part 19 is positioned in the region of the first upper guide element 25 of the collar housing part 19. Another end stop 62 (see Figures 11, 13) is provided at by the collar housing part 19. Said other end stop 62 is positioned in the region of the first lower guide element 25 of the collar housing part 19. The other end stop 62 provides also a third clearance compensation element between the electronic module housing 24 and the collar housing part 19 for clearance compensation in Z direction (see Figure 2).

[0057] Preferably, a wall section of the collar housing part 19 defines together with a wall section of the electronic module housing 24 a flow channel 38 for cooling air. The wall section of the collar housing part 19 and the wall section of the electronic module housing 24 preferably each have an indentation 39, 40 defining the flow channel 38 for the cooling air when the electronic module 15 and the fan module 14 are mounted together.

[0058] The cooling impeller 22 can suck in cooling air through said flow channel 38 and can provide said cooling air to cool the first electronic components being positioned within the second interior space of the fan module housing 16.

[0059] The cooling air used to cool the first electronic components can flow out of the second interior space through at least one gap (not visible) between the collar housing part 19 and the fan plate housing part 17.

[0060] As mentioned above, the electronic module 15 is electrically or electronically connected to the respective other components of the gas burner appliance by wires or the cable 52. See Figures 1, 3. Said cable 52 is U-shaped. At least one cable holder 59 provides the U-shape of the cable 52. If water condensate drips from top of gas burner appliance on the cable 52, said water runs along the cable 52, but because of U shape on bottom it

drips down and does not enter the connector 53.

[0061] Figure 20 shows a spare fuse 58 for the electronic components. The spare fuse 58 is accessible without removing the electronic module 15.

[0062] A handle 60 provided at a side wall of the electronic module housing 24 of the electronic module 15 allows an easy and secure handling of the electronic module 15 while mounting and unmounting the electronic module 15 and the fan module 14.

[0063] The present disclosure provides further the assembly 10 comprising the above described fan assembly 11, the gas valve 13 and the gas/air mixer 12. The gas valve 13 has a gas valve housing 41 providing a gas inlet 42 and a gas outlet 43. The gas/air mixer 12 has a gas/air mixer housing 44 providing a gas inlet 45, an air inlet 46 and a gas/air mixture outlet 47.

[0064] The gas valve 13 is mounted to the gas/air mixer 12 in such a way that the gas outlet 42 of the gas valve housing 41 is in communication with the gas inlet 45 of the gas/air mixer housing 44.

[0065] The gas/air mixer 12 is mounted to the fan assembly 11 in such a way that the gas/air mixture outlet 47 of gas/air mixer housing 44 is in communication with a gas/air mixture inlet 48 of fan impeller housing part 18.

List of reference signs

[0066]

10 assembly
11 fan assembly
12 gas/air mixer
13 gas valve
14 fan module
15 electronic module
16 fan module housing
17 fan plate housing part
18 fan impeller housing part
19 collar housing part
20 fan impeller
21 rotation axis
22 cooling impeller
23 rotation axis
24 electronic module housing
25 first upper guide element
26 first lower guide element
27 second upper guide element
28 second lower guide element
29 end stop
30 snap lock
31 section
32 protrusion
33 recess
34 first compensation element
35 surface area
36 second compensation element
37 surface area
38 flow channel
39 indentation
40 indentation
41 gas valve housing
42 gas inlet
43 gas outlet
44 gas/air mixer housing
45 gas inlet
46 air inlet
47 gas/air mixture outlet
48 gas/air mixture intlet
49 wire/cable
50 connector
51 mounting/unmounting direction
52 wire/cable
53 connector
54 receptacle
55 receptacle
56 connector lock
57 connector lock
58 spare fuse
59 cable holders
60 handle
61 stop
62 end stop

Claims

1. Fan assembly (11) of a gas burner appliance, comprising a fa

n module (14), said fan module (14) having

a fan module housing (16) comprising a fan plate housing part (17), a fan impeller housing part (18) and a collar housing part (19), wherein the fan impeller housing part (18) is mounted to the fan plate housing part (17) at a first side of the fan plate housing part (17), and wherein the collar housing part (19) is mounted to the fan plate housing part (17) at an opposite second side of the fan plate housing part (17),

a fan impeller (20), said fan impeller (20) being positioned at the first side of the fan plate housing part (17) within a first interior space of the fan module housing (16) defined by the fan plate housing part (17) and the fan impeller housing part (18),

a cooling impeller (22), said cooling impeller (22) being positioned at the second side of the fan plate housing part (17) within a second interior space of the fan module housing (16) defined by the fan plate housing part (17) and the collar housing part (19),

first electronic components for controlling the operation of the fan assembly (14), said first electronic components being posi-

tioned within the second interior space, wherein said first electronic components are cooled by said cooling impeller (22),

an electronic module (15), said electronic module (15) having

an electronic module housing (24),
second electronic components for controlling the operation of the fan assembly, said second electronic components being positioned with said electronic module housing (24),

wherein said second electronic components are electrically or electronically connected to said first electronic components,
wherein the electronic module housing (24) is releasably mounted to collar housing part (19) in such a way that for mounting the electronic module (15) to the fan module (14) and for unmounting the electronic module (15) from the fan module (14) the electronic module (15) is guided relocatable at the collar housing part (19) in a linear direction running perpendicular to a rotation axis (23) of the cooling impeller (22) and/or running perpendicular to a rotation axis (21) of the fan impeller (20).

2. Fan assembly as claimed in claim 1, **characterized by**
guide elements (25, 26, 27, 28) for guiding the electronic module (15) at the collar housing part (19) while mounting and unmounting the electronic module (15) and the fan module (14).

3. Fan assembly as claimed in claim 2, **characterized in that**

the collar housing part (19) of the fan module housing (16) of the fan module (14) has first upper and lower guide elements (25, 26),
the electronic module housing (24) of the electronic module (15) has second upper and lower guide elements (27, 28),
said first upper and lower guide elements (25, 26) of the collar housing part (19) and said second first upper and lower guide elements (27, 28) of the electronic module housing (24) define together the linear direction of movement while mounting and unmounting the electronic module (15) and the fan module (14).

4. Fan assembly as claimed in claim 2 or 3, **characterized in that**
said first upper and lower guide elements (25, 26) of the collar housing part (19) and said second first upper and lower guide elements (27, 28) of the electronic module housing (24) provide guide rails.

5. Fan assembly as claimed in one of claims 1 to 4, **characterized in that**
said electronic module (15) has third electronic components for controlling the operation of other components of the gas burner appliance.

6. Fan assembly as claimed in one of claims 1 to 5, **characterized by**
a first cable (49) or first wires (49) connecting the second electronic components of said electronic module (15) to the fan module and to the first electronic components of the fan module (14).

7. Fan assembly as claimed in claim 5 and 6, **characterized by**
a second cable (52) or second wires (52) connecting the third electronic components of said electronic module (15) to other components of the gas burner appliance.

8. Fan assembly as claimed in claim 6 or 7, **characterized in that**
the electronic module housing (24) has receptacles (54, 55) for receiving a connector (50, 53) of the respective cable or respective wires (49, 52) and connector locks (56, 57) for securing the connector (50, 53) of the respective cable or wires (49, 52) at the electronic module housing (24).

9. Fan assembly as claimed in one of claims 1 to 8, **characterized in that**
said collar housing part (19) of the fan module housing (16) of the fan module (14) has an end stop (29, 62) limiting the linear movement of the electronic module (15) relative to the fan module (14) while mounting the electronic module (15) to the fan module (14).

10. Fan assembly as claimed in one of claims 1 to 9, **characterized in that**

said collar housing part (19) of the fan module housing (16) of the fan module (14) has a locking element for securing the electronic module (15) at the fan module (14),
said locking element being preferably provided by a snap lock (30) engaging a section (31) of the electronic module housing (24) when the electronic module (15) is mounted to the fan module (14).

11. Fan assembly as claimed in claim 10, **characterized in that**
said section (31) of the electronic module housing (24) has a protrusion (32) engaging into a recess (33) of the snap lock (30) when the snap lock (30)

secures the electronic module (15) at the fan module (14).

12. Fan assembly as claimed in one of claims 1 to 11, **characterized by**
compensation elements (34, 36) for compensating a clearance between the electronic module (15) and the fan module (14) when the electronic module (15) and the fan module (14) are mounted together, said compensation elements are preferably provided by elastically deformable protrusions at the electronic module housing (24) and/or collar housing part (19).

13. Fan assembly as claimed in claim 12, **characterized by**

first compensation elements (34) for compensating a clearance between the electronic module housing (24) and the collar housing part (19) of the fan module housing (16) in the direction running parallel to the rotation axis of the cooling impeller (22) and running parallel to a rotation axis of the fan impeller (20), and/or
second compensation elements (36) for compensating a clearance between the electronic module housing (24) and the collar housing part (19) of the fan module housing (16) in the direction running perpendicular to the rotation axis of the cooling impeller (22), running perpendicular to the a rotation axis of the fan impeller (20) and running perpendicular for the linear direction of movement of the electronic module (15) when mounting and unmounting the electronic module (15) and the fan module (14).

14. Fan assembly as claimed in one of claims 1 to 13, **characterized in that**

a wall section of the collar housing part (19) defines together with a wall section of the electronic module housing (24) a flow channel (38) for cooling air,
the wall section of the collar housing part (19) and the wall section of the electronic module housing (24) preferably each have an indentation (49, 40) defining the flow channel (38) for cooling air when the electronic module (15) and the fan module (14) are mounted together.

15. Assembly (10) comprising

a gas valve (13) having a gas valve housing (41) providing

a gas inlet (42)
a gas outlet (43),

a fan assembly (11) as claimed in one of claims 1 to 14,
a gas/air mixer (12) having a gas/air mixer housing (44) providing

a gas inlet (45),
an air inlet (46),
an gas/air mixture outlet (47),

wherein the gas valve (13) is mounted to the gas/air mixer (12) in such a way that the gas outlet (42) of the gas valve housing (41) is in communication with the gas inlet (45) of the gas/air mixer housing (44).
wherein the gas/air mixer (12) is mounted to the fan assembly (11) in such a way that the gas/air mixture outlet (47) of gas/air mixer housing (44) is in communication with a gas/air mixture inlet (48) of fan impeller housing part (18).

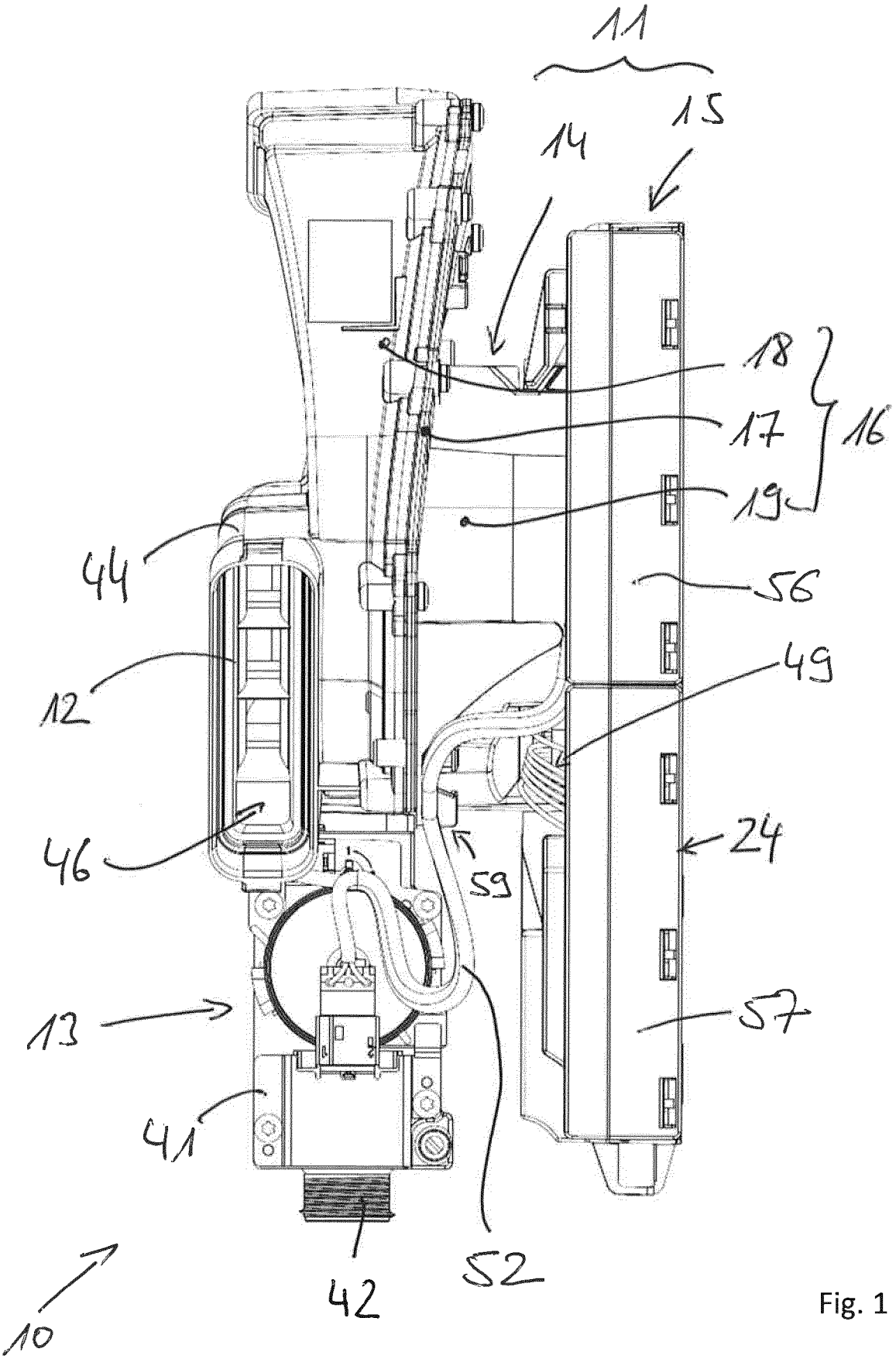

Fig. 1

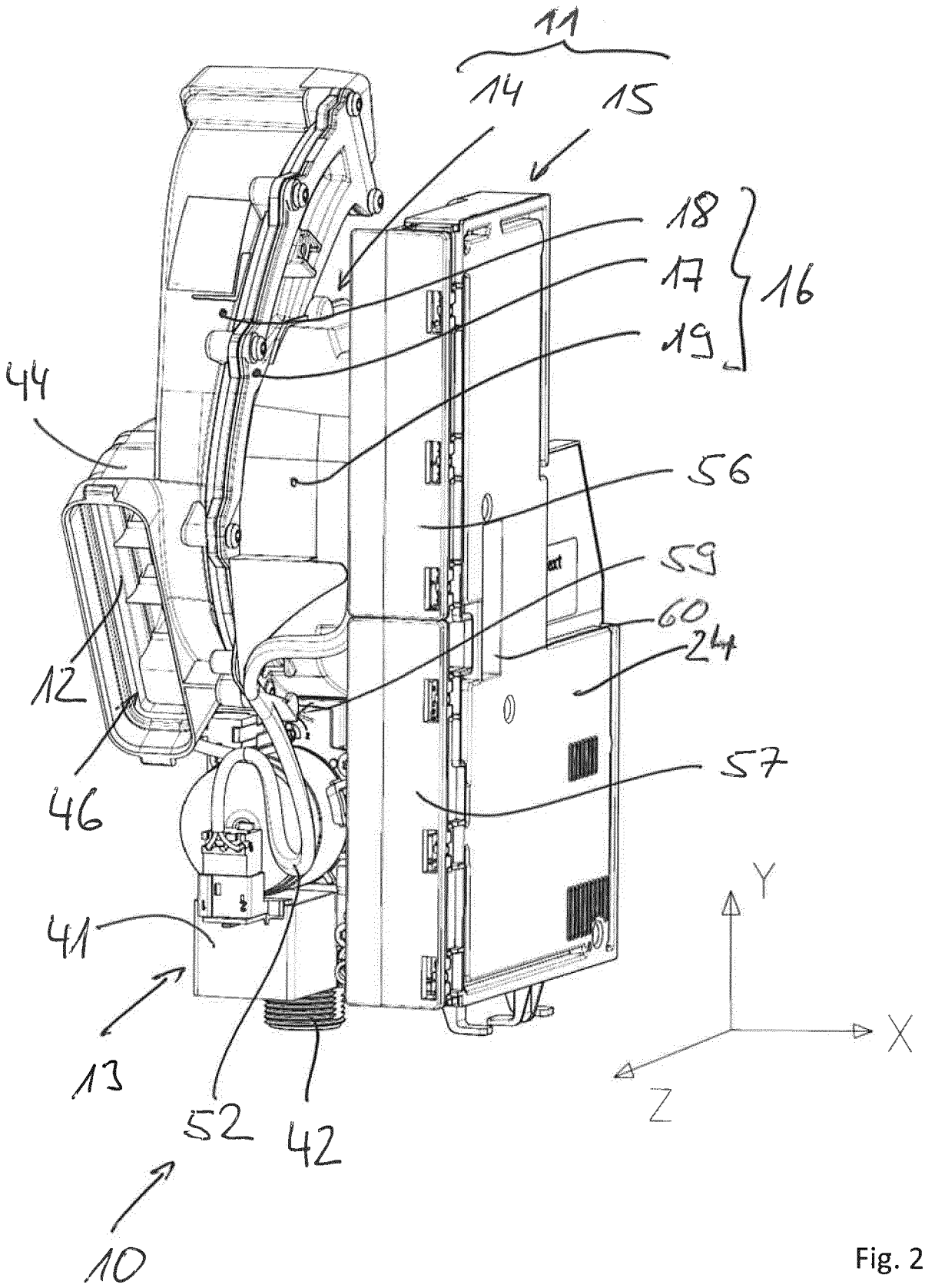

Fig. 2

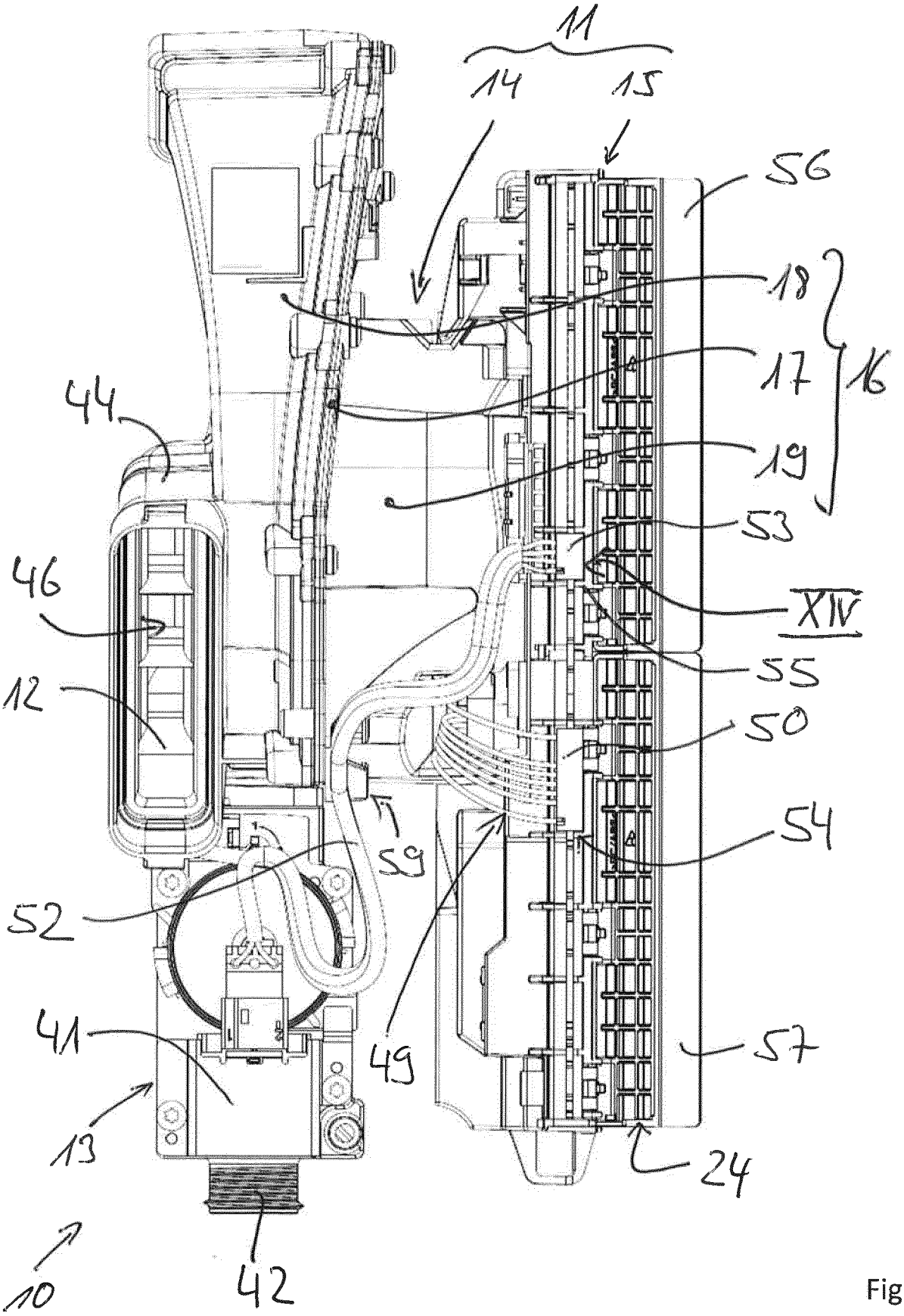
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Fig. 3

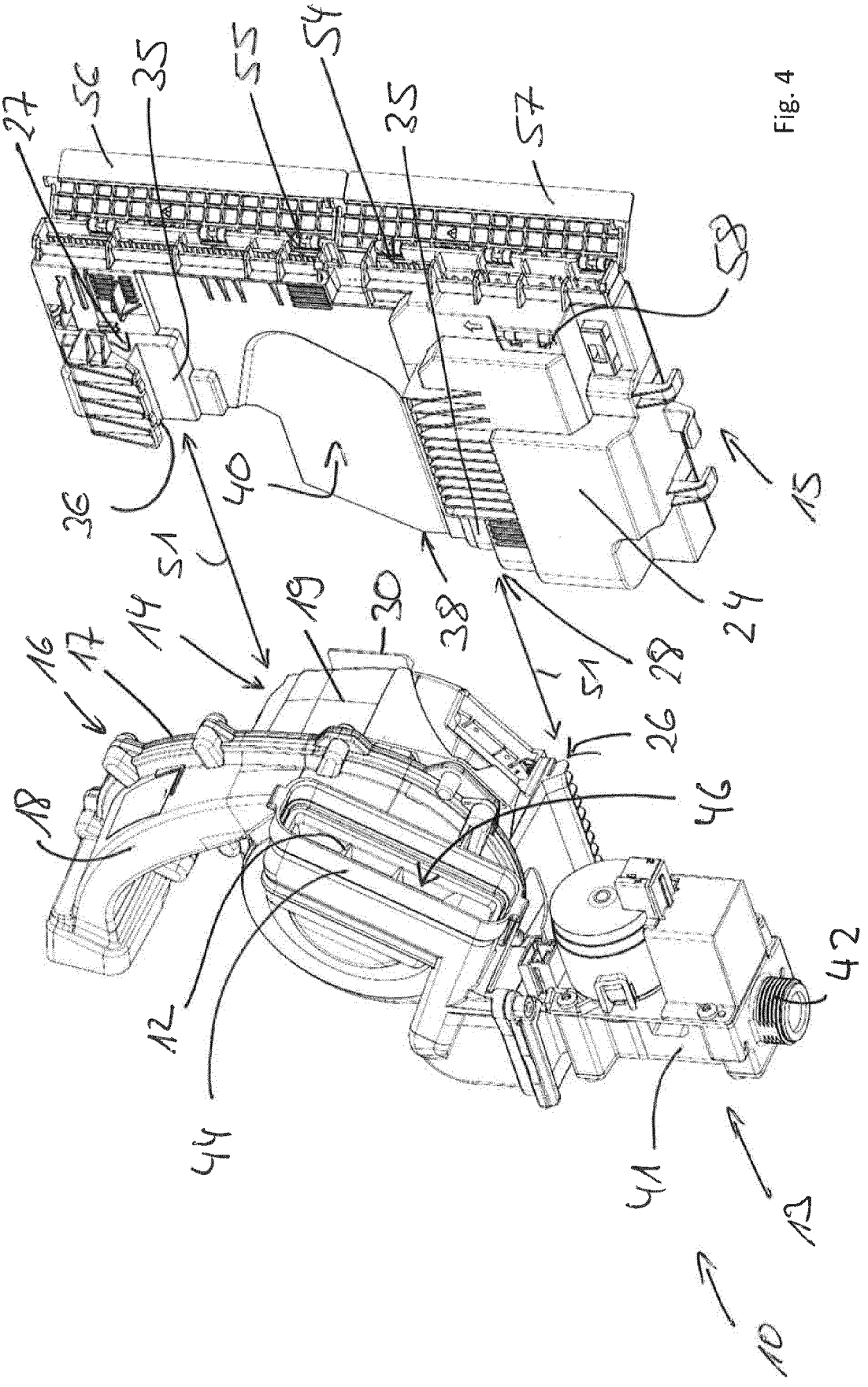
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Fig. 4

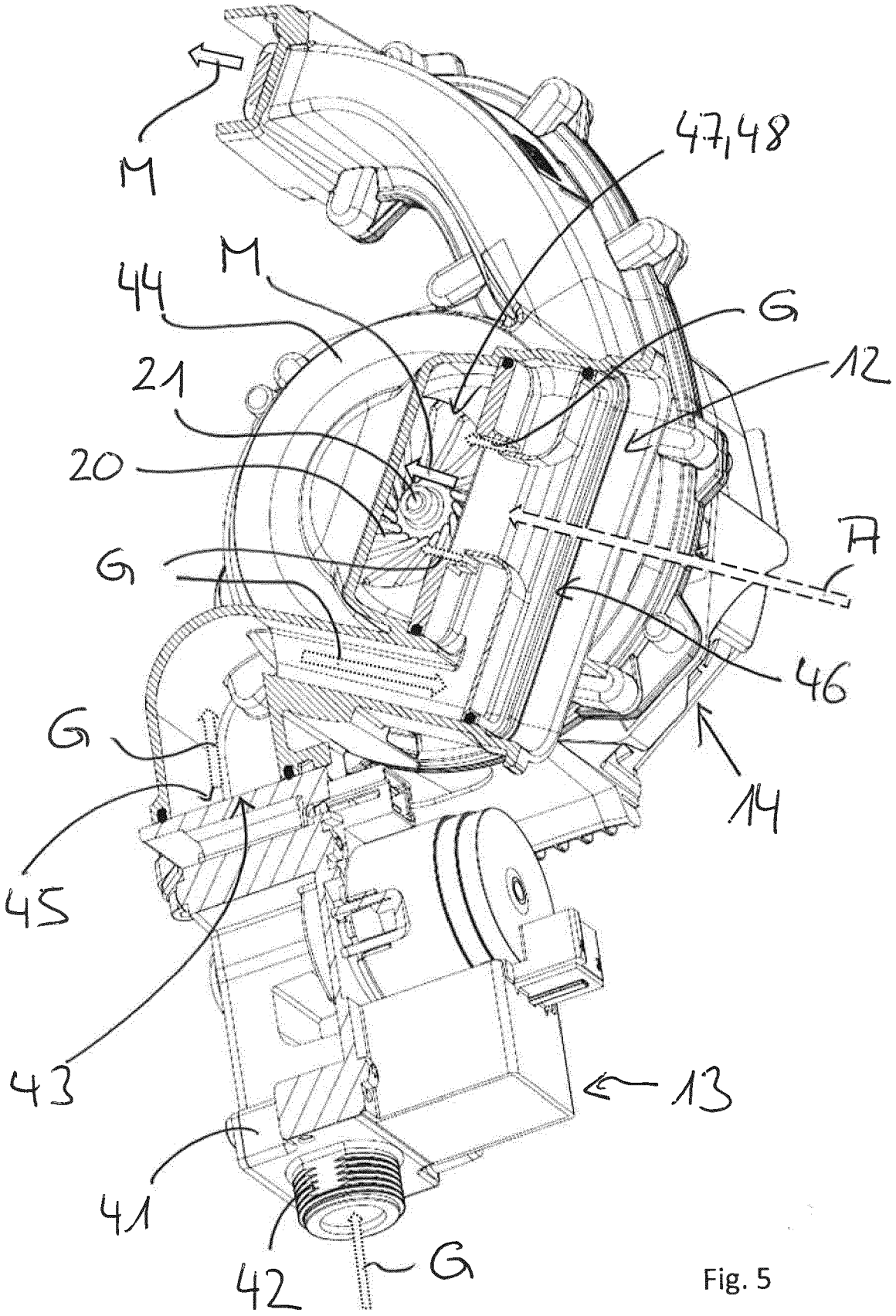


Fig. 5

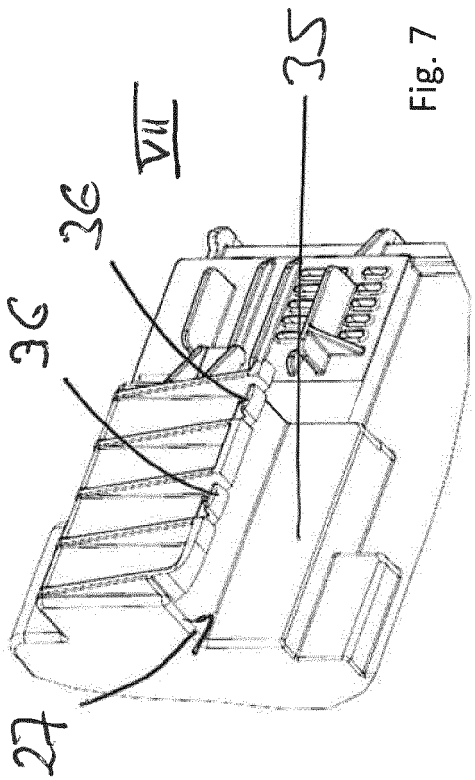


Fig. 7

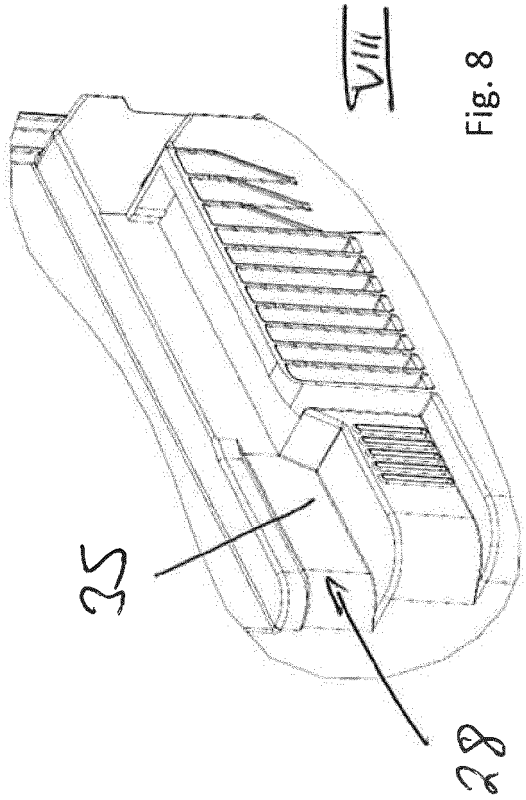
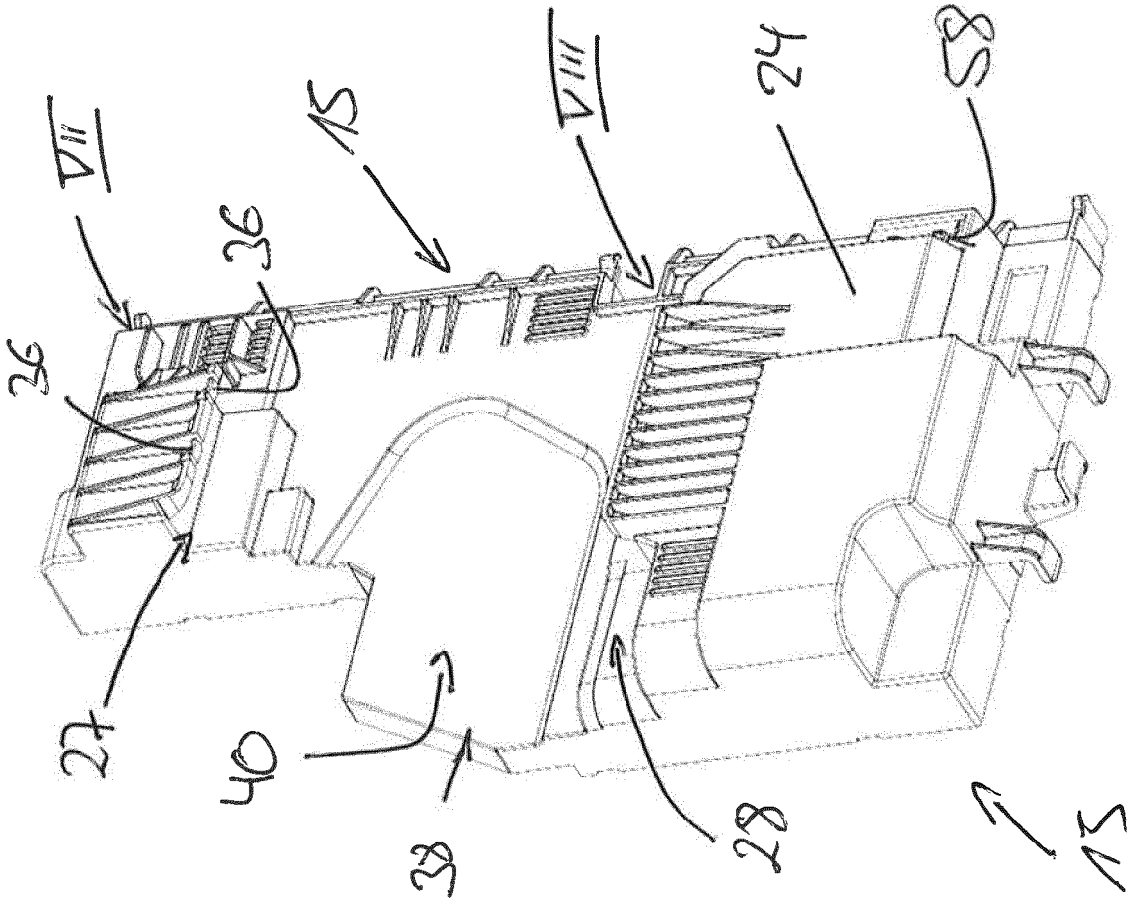


Fig. 8



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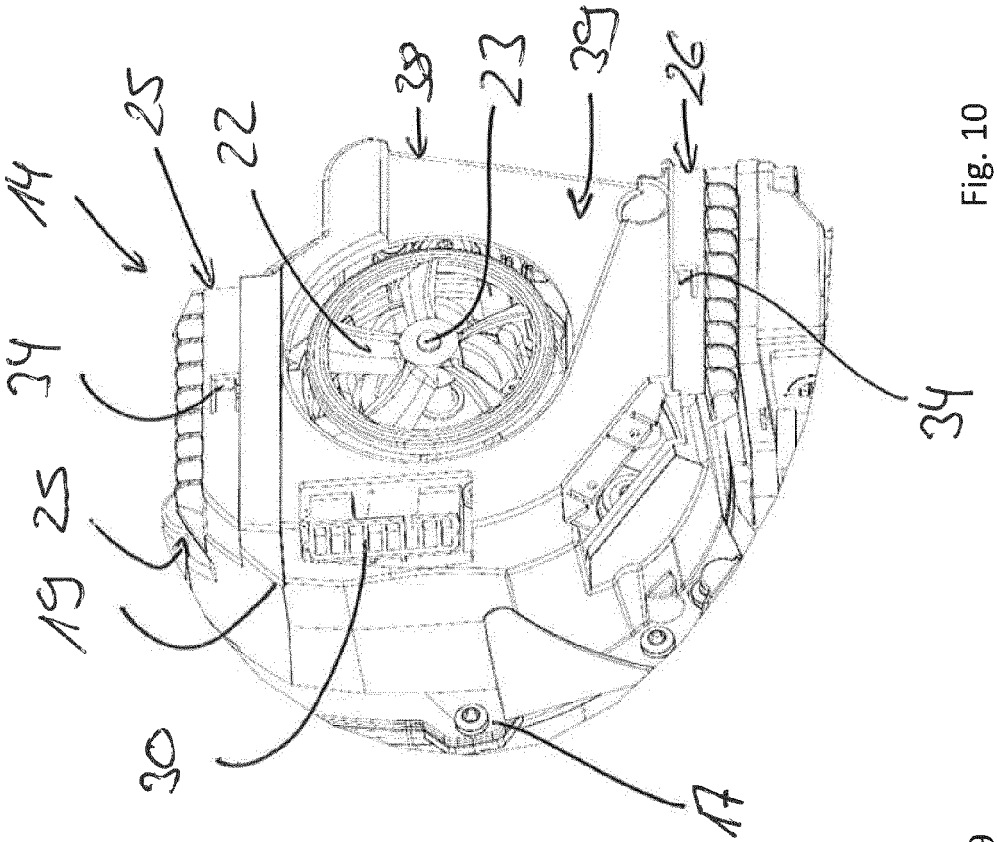
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Fig. 10

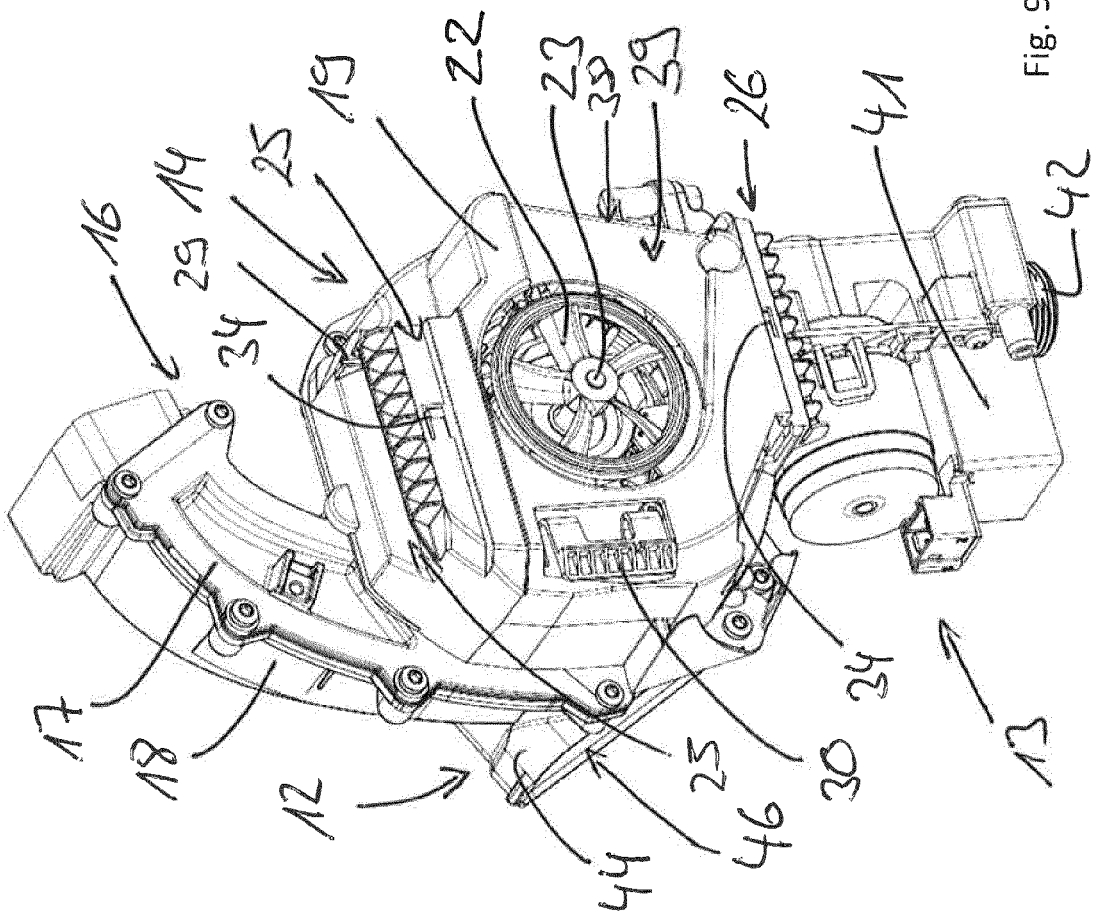
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Fig. 9

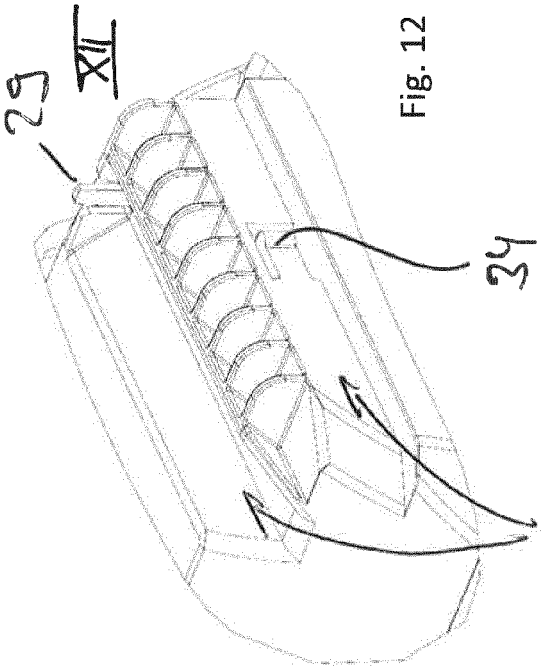

Fig. 12

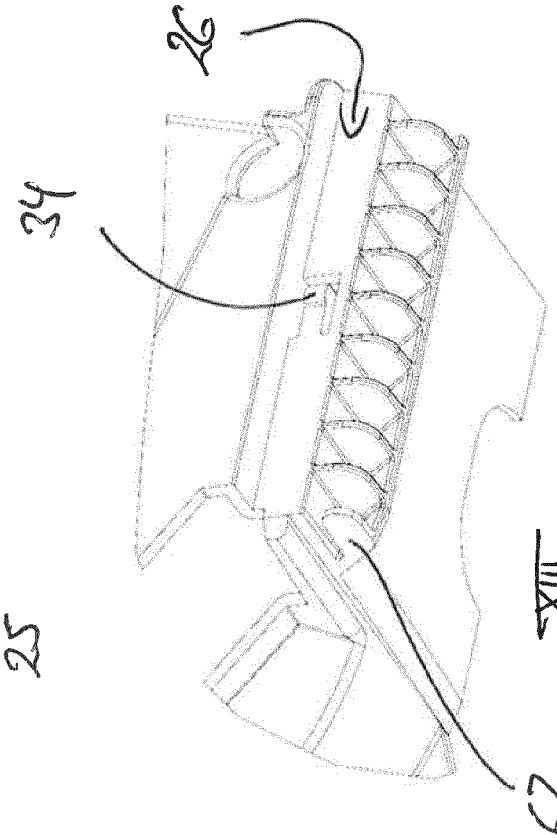

Fig. 13

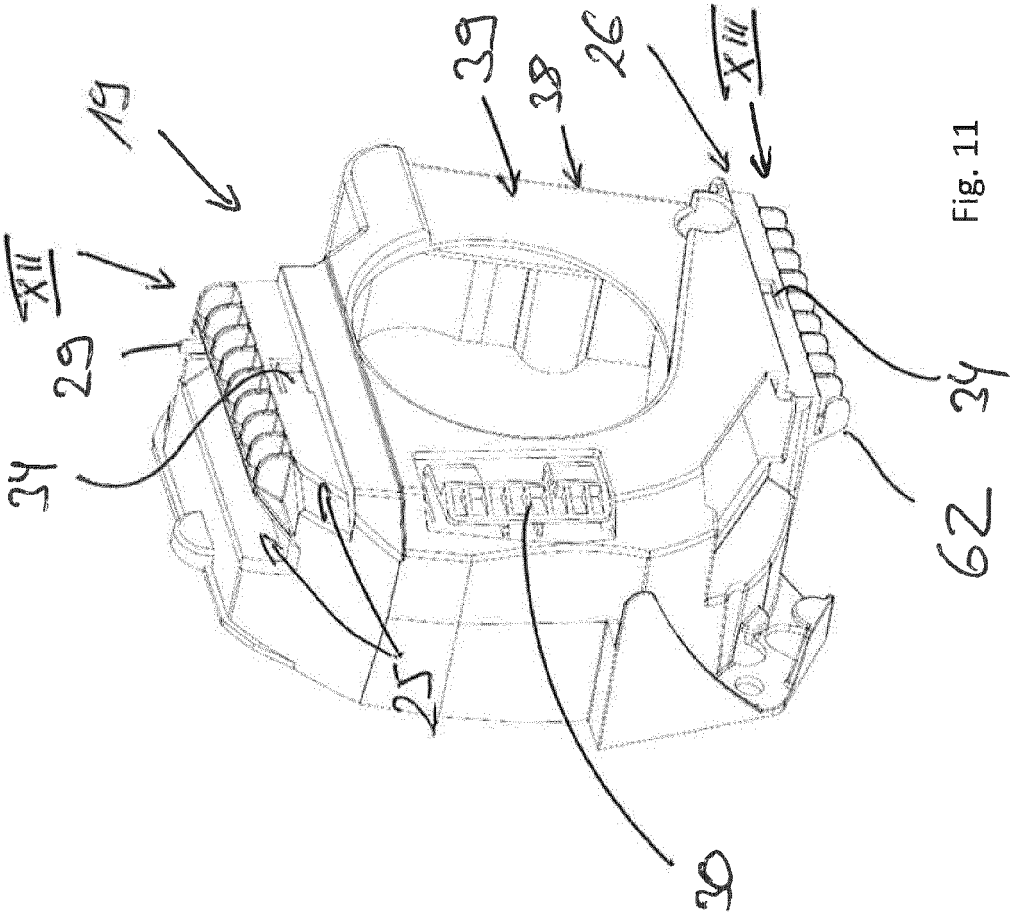

Fig. 11

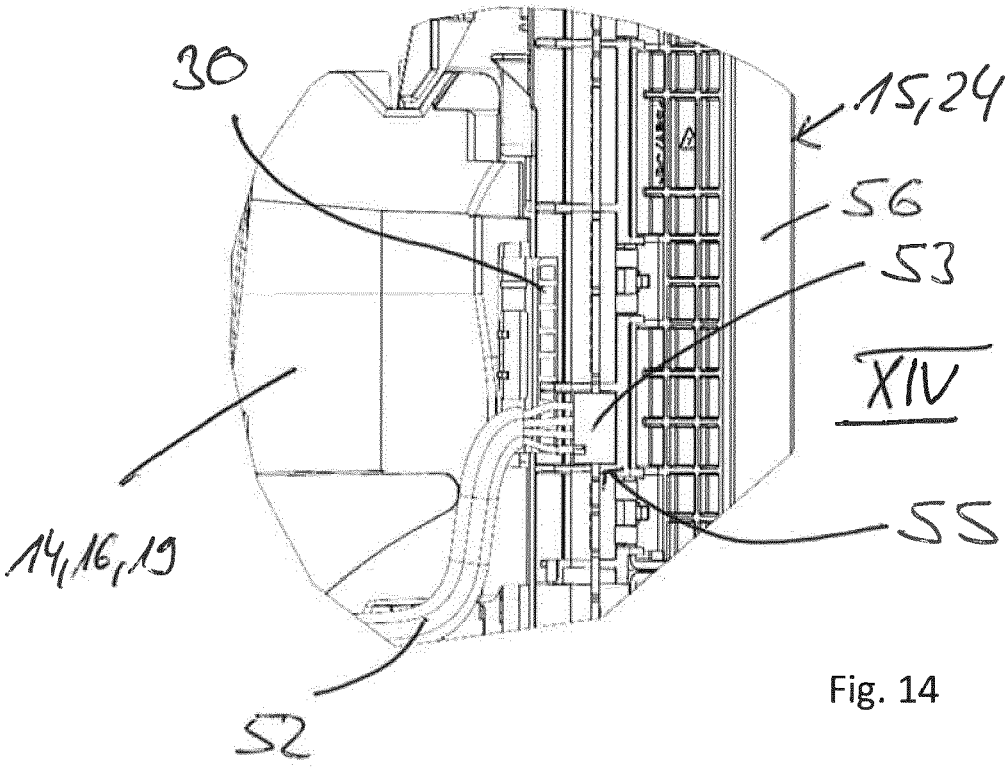

Fig. 14

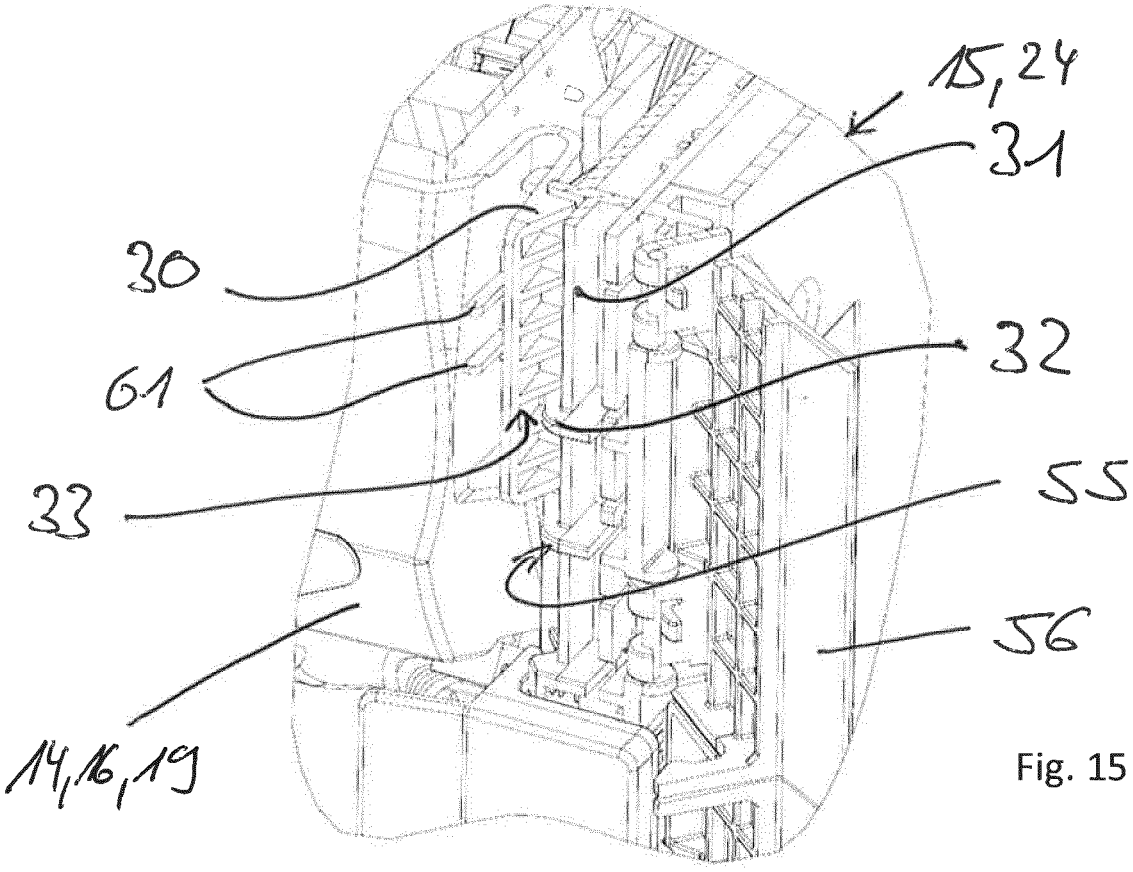

Fig. 15

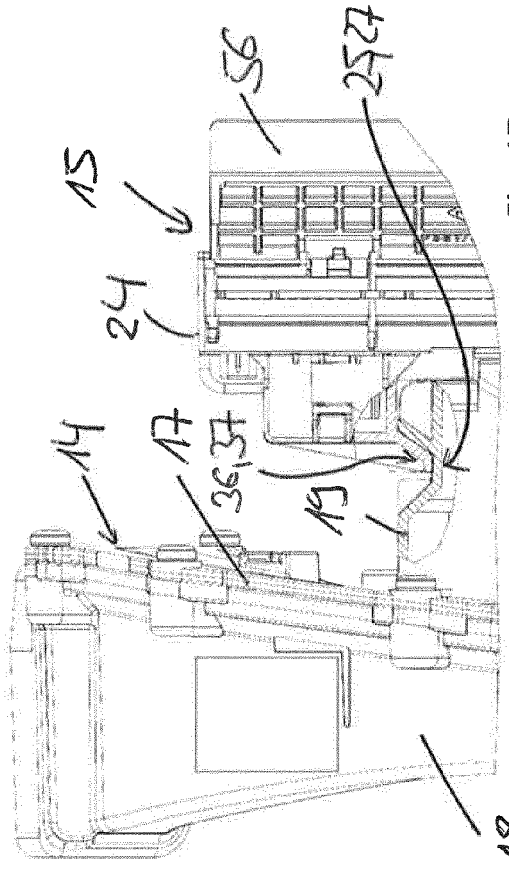

Fig. 17

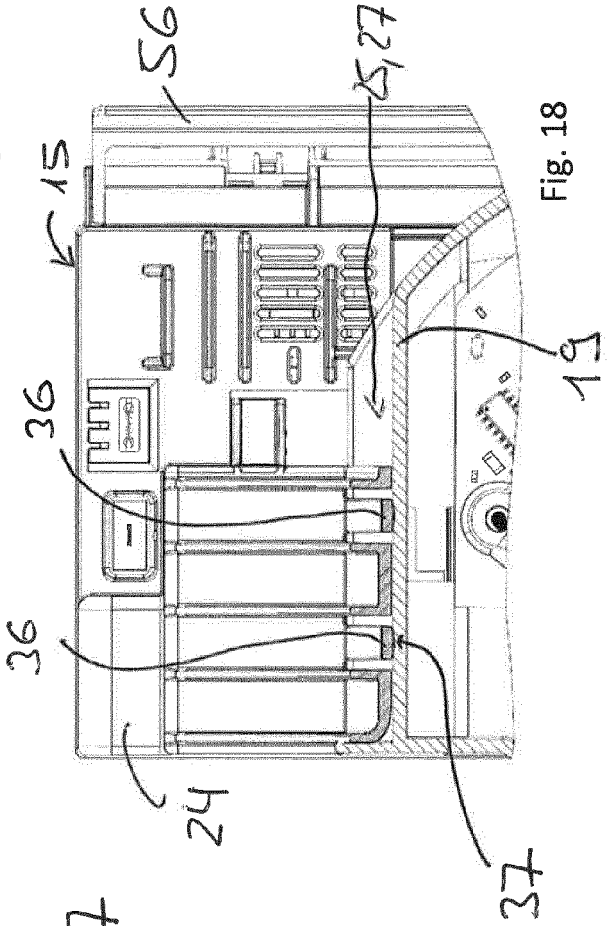

Fig. 18

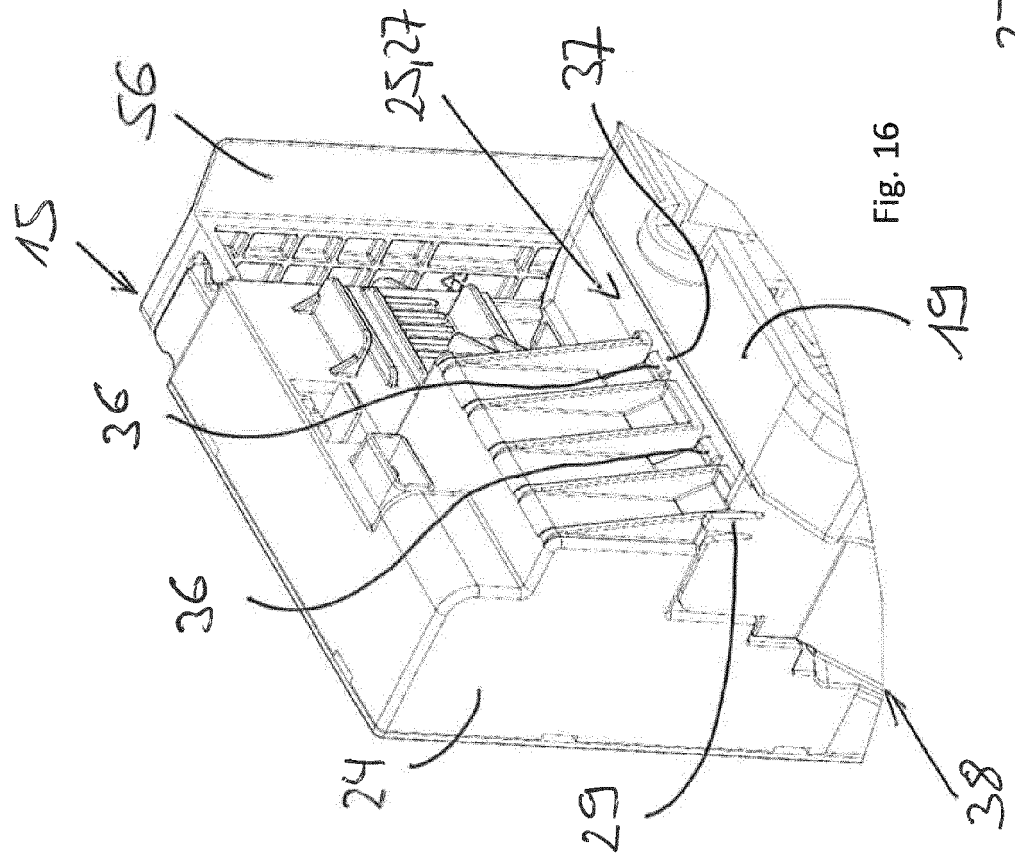

Fig. 16

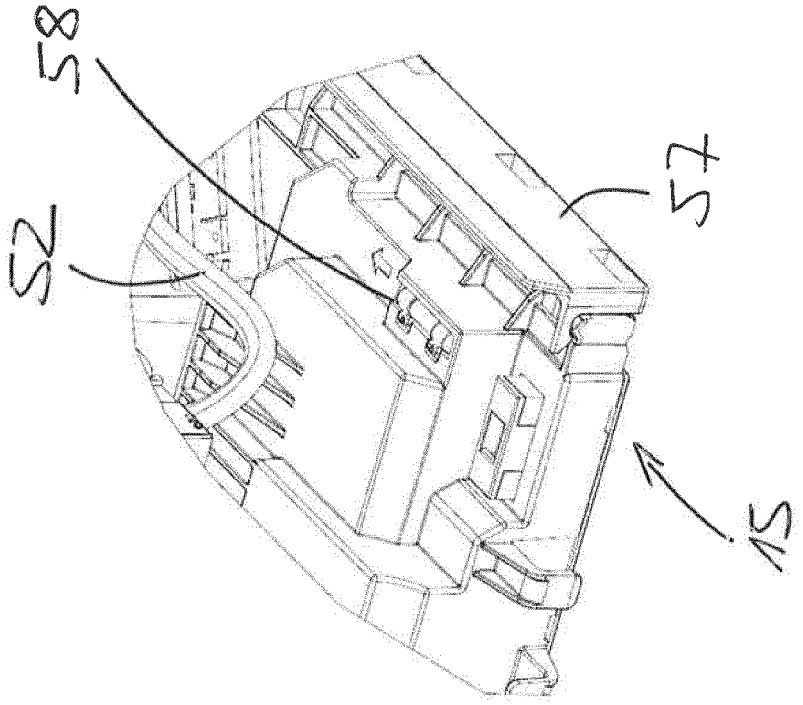

Fig. 20

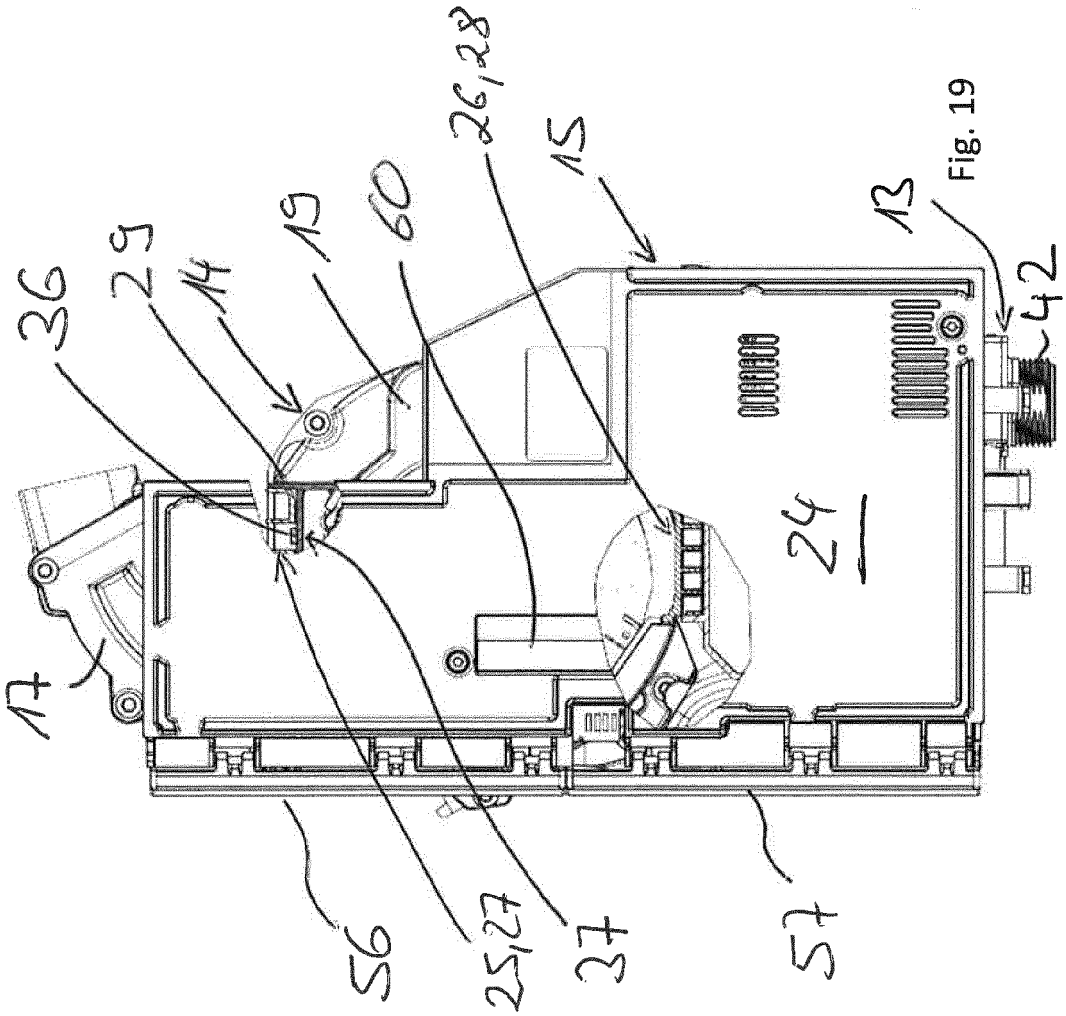

Fig. 19

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EUROPEAN SEARCH REPORT

Application Number
EP 19 15 9248

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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A	US 2016/285339 A1 (SMITH MICHAEL DAVID [US] ET AL) 29 September 2016 (2016-09-29) * figure 3 * * paragraphs [0025] - [0029] * * paragraph [0002] * * paragraph [0051] * -----	1-15	INV. F04D17/16 F04D25/06 F04D29/58 F23D14/36
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The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	5 August 2019	Ingelbrecht, Peter

CATEGORY OF CITED DOCUMENTS

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